Laboratory Safety
Newsletter
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Yale *Environmental Health & Safety*

This issue

Photo: Yale EHS staff share information on personal protective equipment at the 16th annual Chemistry Safety Day at Sterling Chemistry Laboratory.

Expired, But Effective, Hand Sanitizers and Wipes Available at YPPS

Yale Printing & Publishing (YPPS) has a surplus of free alcohol wipes and gels, along with gowns and gloves that can be ordered for personal use (home and office). Expired sanitizers and gloves cannot be utilized in labs, clinics or other healthcare settings.

EHS staff had an independent lab within the state test samples of all alcohol-based products available at YPPS. All of the alcohol products at YPPS have been shown to still have the same concentration of alcohol listed on the containers or package.

Use the YPPS order link to order any of these products for personal use.

NOTE: You will have to enter your Lead Administrator's information prior to confirming the order, so email your Lead Administrator if you are interested in making an order.

House Vacuum Systems Safety Guidelines

House vacuum systems are crucial for laboratory operations, particularly for the removal of aqueous waste and the filter sterilization of media. However, improper use and set-up can result in significant hazards, ranging from implosions to contamination, which can affect research integrity and pose safety risks to lab personnel and facility maintenance staff.

Incidents at Yale

Radioactive Contamination
A vacuum system used for radioactive experiments lacked an overflow flask and an in-line HEPA filter. This resulted in contamination of the vacuum line with radioactivity.

Implosion of Collection Flask
A non-vacuum-rated flask used in a house vacuum system imploded during filtration, leading to a researcher receiving a bleach splash to the eye. The researcher was fortunately shielded from glass fragments by a biological safety cabinet.

Chemical Reaction and Evacuation
Addition of bleach to a presumed cell culture media caused a hazardous reaction, leading to foam, spillover, and noxious fumes. The lab was evacuated, and EHS managed the hazardous waste.

Glass Pipette Injury
A glass pipette used for vacuum aspiration shattered resulting in a hand injury to a researcher.

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Find Your Safety Advisor

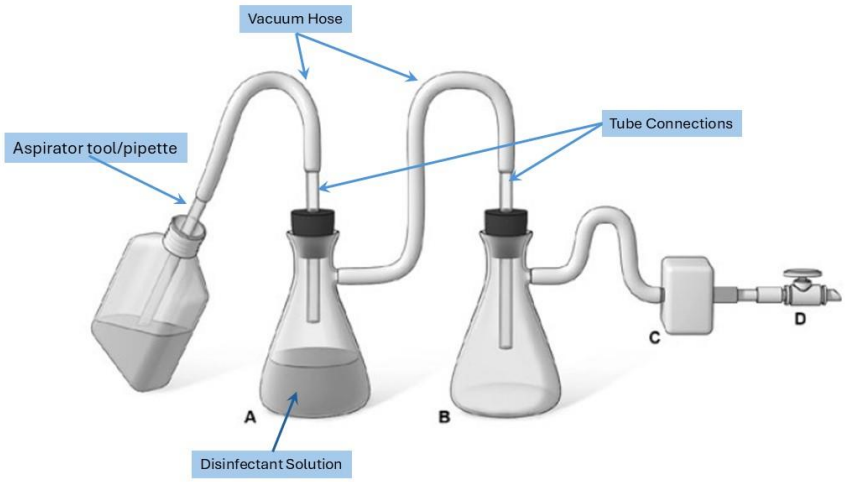
Safety advisors are health and safety specialists assigned to a geographic area within the Yale community to assist in finding solutions to health and safety issues. They work cooperatively with staff and students to provide information, training, and technical expertise along with assisting in the interpretation of regulatory requirements. By being assigned specific areas of campus, safety advisors provide a more personalized service and are the point of contact for labs and non-lab areas.

Search for your safety advisor.

House Vacuum Systems Preventive Safety Measures

- **Follow Proper Setup**:
  - Always adhere to the vacuum system setup diagram (Figure 1).
- **Use Appropriate Equipment**:
  - Employ an in-line HEPA filter for fluid aspiration.
  - Avoid using glass pipettes for tube connections.
  - Use vacuum-rated flasks only.
  - Label collection flasks accurately with contents and preparation date.
- **Inspection and Maintenance**:
  - Regularly inspect flasks for damage and replace if necessary.
  - Conduct wipe tests when using vacuum systems with radioactive substances.
- **Alternatives and Risk Assessment**:
  - Consider using portable self-contained vacuum aspiration systems.
  - Seek an EHS risk assessment for using vacuum systems with corrosive, flammable, toxic solvents, or radioactive materials.

For more information, see the Yale EHS Safety Guidelines for Vacuum Systems and additional resources provided within the document.



The collection flask (**A**) is used to collect the contaminated fluids into a suitable disinfectant solution. The collection flask must be labelled with the name of the disinfectant, the disinfectant concentration, and the date of preparation.The overflow flask (**B**) serves as a fluid overflow vessel. An in-line HEPA filter (**C**) is used to protect the vacuum system (**D**) from aerosolized contaminants.

Workday Learning: Quick Fixes and Best Practices

Avoid common roadblocks in Workday Learning with these quick tips:

- **Check your tech:** Test your internet, sound, and VPN before starting.
- **Use the right browser:** Google Chrome is the preferred browser. Avoid Safari.
- **Allow pop-ups:** Turn off pop-up blockers so trainings can open. Courses launch in a new window, and links may also open in their own window. If you can't find your course, check if a new window opened behind your browser.
- **Play interactions fully:** On slides with clickable items, listen to the full audio for each one. The **NEXT** button will only work after all items are complete. If an error occurs, return to the previous slide and replay the course from that point.
- **Skip tricky PDFs:** If a course closes when you click a PDF link, skip it. All links are located in the **RESOURCES** tab at the top of the course.
- **Clear your browser:** If you see looping or error messages, clear cache/cookies or refresh the page.
- **Restart if stuck:** Close your browser, log back into Workday Learning, and relaunch the course. Progress is usually saved unless you're in a private/incognito window or recently cleared your cache.

Following these steps will help you finish courses smoothly and without interruptions.

Research and Clinical Lab Biosecurity

EHS has recently created a new webpage dedicated to research and clinical laboratory biosecurity. This initiative is also part of an annual promotional event established by the American Biological Safety Association International for biosafety and biosecurity month. The Centers for Disease Control and National Institutes of Health define laboratory biosecurity as "…measures designed to prevent loss, theft, or deliberate misuse of biological material, technology, or research-related information from laboratories or laboratory-associated facilities." [(1)] Yale EHS has created new lab biosecurity resources to help your lab improve your biosecurity measures. Basic pillars of biosecurity are provided below. For more extensive information on lab biosecurity, please review the new World Health Organization (WHO) Laboratory Biosecurity Manual [(2)].

Identify

- Identify high risk biological materials (HRBM) and valuable biological materials (VBM).
- Establish written inventories.
- Keep inventories updated.
- Share the Lessons Learned on Security Breach and Stolen Samples with your staff.

Protect

- Establish formal biosecurity policies for your lab.
- Lock doors, freezers and use lockboxes where needed.
- Use tamper tape to secure materials in long-term storage.
- Protect your information and data.
- Use Yale's Cybersecurity resources.
- Limit knowledge of your VBM or HRBM to those outside of your lab.

Check

- Inspect your inventory periodically.
- Conduct exit interviews with departing staff, discard unwanted materials and update inventories.
- Use the Biosecurity Checklist to evaluate your lab's biosecurity fitness.

Report

- Inventory discrepancies
- Losses, thefts, sabotage
- Disgruntled lab staff
- Significant unexplained staff absences
- Suspicious people, activities or packages
- Emergencies such as exposures, spills or other releases

Additional Resources

- Lab Biosecurity Poster
- Lab Biosecurity Checklist
- Lessons Learned: Security Breach
- Lessons Learned: Stolen Samples
- Breaks in Skin poster (Lab Acquired Infections are escapes from the laboratory)
- Securing the Lab: The Hidden Side of Safety (Sway presentation)
- Yale 2022 Biosecurity information as part of ABSA International Biosafety & Biosecurity Month
- High Risk Biological Materials Tools & Resources (include sample inventory sheets, freezer maps and exit interview questionnaires) and campus policy

Please contact your EHS safety advisor if you have any questions or need further information.

1. *Centers for Disease Control and Prevention. 2020. *Biosafety in Microbiological and Biomedical Laboratories*. 6th ed. U.S. Department of Health and Human Services. https://stacks.cdc.gov/view/cdc/97733*
2. *Laboratory biosafety manual, fourth edition. Geneva: World Health Organization; 2020 (Laboratory biosafety manual, fourth edition and associated monographs). License: CC BY-NC-SA 3.0 IGO. https://www.who.int/publications/i/item/9789240011311*